What is claimed is:

1. A parallel fluid processing data correction method comprising the steps of:

providing a plurality of flow-through fluid process regions in fluid communication with a common first fluid source through a splitting network and in fluid communication with at least one second fluid source, each fluid process region of the plurality of fluid process regions containing solid material, wherein the first fluid source supplies a first fluid to the plurality of fluid process regions at a selected first fluid source output flow rate;

providing at least one detector in sensory communication with the plurality of fluid process regions;

supplying a calibrant to each process region of the plurality of fluid process regions;

processing the calibrant in each process region of the plurality of fluid process regions according to a first fluid source output flow rate and a first fluid source composition profile;

measuring, for each fluid process region of the plurality of fluid process regions, a first physical parameter using the at least one detector;

deriving, for each fluid process region of the plurality of fluid process regions, at least one correction factor based on the first physical parameter;

supplying, to each fluid process region of the plurality of fluid process regions, at least one second fluid from the at least one second fluid source;

processing the at least one second fluid in each fluid process region of the plurality of fluid process regions to obtain raw process data; and

applying, for each process region of the plurality of process regions, the at least one correction factor to the raw process data to yield corrected process data.

2. The method of claim 1 wherein the measuring step is performed inferentially.

3. The method of claim 1 wherein the measuring step is performed substantially downstream of each fluid process region of the plurality of fluid process regions.

4. The method of claim 1 wherein the first physical parameter comprises any of absorbance, fluorescence, optical scattering, evaporative light scattering, temperature profile, voltage profile, current profile, molecular weight, molecular composition, elemental composition, flow, and pressure.

5. The method of claim 4, further comprising the step of recording, for each fluid process region of the plurality of fluid process regions, the first physical parameter as a function of time.

6. The method of claim 1 wherein:

the solid material comprises separation media;

the calibrant comprises at least one calibrant component;

the first fluid comprises at least one mobile phase fluid;

the second fluid comprises a plurality of second fluid components;

the calibrant processing step comprises eluting the at least one calibrant component; and

the second fluid processing step comprises eluting at least two second fluid components of the plurality of second fluid components.

7. The method of claim 1 wherein:

the solid material comprises separation media;

the calibrant comprises at least one calibrant component;

the first fluid comprises at least one mobile phase fluid;

the second fluid comprises at least one second fluid component;

the second fluid processing step comprises determining the elution time of the at least one second fluid component.

8. The method of claim 1 wherein the first fluid comprises a first mobile phase fluid and a second mobile phase fluid, the method further comprising the step of mixing the first mobile phase fluid and the second mobile phase fluid, wherein the composition of the first fluid changes during each of the calibrant processing step and the second fluid processing step.

9. The method of claim 1, further comprising the step of flushing the plurality of fluid process regions between the first processing step and the second processing step.

10. The method of claim 1 wherein the common first fluid source comprises at least one pump.

11. The method of claim 1 wherein the common first fluid source comprises at least two reservoirs of different fluids.

12. The method of claim 1 wherein the at least one second fluid comprises a plurality of different second fluids, and the second fluid supplying step includes supplying a different second fluid to each fluid process region of the plurality of fluid process regions.

13. The method of claim 1 wherein each fluid process region of the plurality of fluid process regions is microfluidic.

14. The method of claim 13 wherein the plurality of fluid process regions is integrated into a single microfluidic device.

15. The method of claim 1 wherein the at least one detector includes a plurality of detector channels, wherein each detector channel of the plurality of detector channels is in sensory communication with a different fluid process region of the plurality of fluid process regions.

16. The method of claim 1 wherein the at least one detector is in indirect sensory communication with each fluid process region of the plurality of fluid process regions.

17. The method of claim 1 wherein the solid material comprises packed particulate material.

18. The method of claim 1 wherein each fluid process region of the plurality of fluid process regions contains solid material of substantially the same composition.

19. The method of claim 1 wherein the plurality of fluid process regions includes a first fluid process region containing a first solid material and a second fluid process region containing a second solid material, wherein the performance of the first fluid process region is substantially different from the performance of the second fluid process region.

20. The method of claim 1 wherein the solid material comprises at least one catalyst material.

21. A multi-column liquid chromatography data correction method comprising the steps of:

providing a plurality of liquid chromatography columns in fluid communication with a common mobile phase source, each column of the plurality of columns containing a stationary phase material, wherein the mobile phase source supplies mobile phase to the plurality of columns at a selected mobile phase source output flow rate;

providing at least one detector in sensory communication with the plurality of columns;

supplying a calibrant having at least a first component to each column of the plurality of columns;

eluting the at least a first component of the calibrant in each column of the plurality columns according to a first mobile phase source output flow rate and a first mobile phase composition profile;

measuring, for each column of the plurality of columns, a first physical parameter using the at least one detector;

deriving, for each column of the plurality of columns, at least one correction factor based on the first physical parameter;

supplying, to each column of the plurality of columns, at least one sample containing a plurality of sample components;

eluting at least two components of the plurality of sample components of the at least one sample in each column of the plurality of columns to obtain raw chromatographic data; and

applying, for each column of the plurality of columns, the at least one correction factor to the raw chromatographic data to yield corrected chromatographic output data.

22. The method of claim 21 wherein the corrected chromatographic output data includes any of: corrected retention times, corrected peak areas, corrected baselines, corrected mass throughput, and corrected multiple wavelength correction.

23. The method of claim 21 wherein the at least a first component of the calibrant includes two components having different retention characteristics relative to the stationary phase material.

24. The method of claim 21 wherein the sample elution step is performed according to the first mobile phase source output flow rate and the first mobile phase composition profile.

25. The method of claim 21 wherein the measuring step is performed inferentially.

26. The method of claim 21 wherein the measuring step is performed substantially downstream of each column of the plurality of columns.

27. The method of claim 21 wherein the first physical parameter comprises any of absorbance, fluorescence, optical scattering, evaporative light scattering, temperature profile, voltage profile, current profile, molecular weight, molecular composition, elemental composition, flow, and pressure.

28. The method of claim 21, further comprising the step of recording, for each column of the plurality of columns, the first physical parameter as a function of time.

29. The method of claim 21 wherein the mobile phase comprises a first mobile phase fluid and a second mobile phase fluid, the method further comprising the step of mixing the first mobile phase fluid and the second mobile phase fluid, wherein the composition of the mobile phase changes during each of the calibrant elution step and the sample elution step.

30. The method of claim 21, further comprising the step of flushing the plurality of columns between the calibrant elution step and the sample elution step.

31. The method of claim 21 wherein the common mobile phase source comprises a plurality of pumps and a plurality of fluid reservoirs.

32. The method of claim 21 wherein the sample supplying step includes supplying a different sample of the at least one sample to each column of the plurality of columns.

33. The method of claim 21 wherein each column of the plurality of columns is microfluidic.

34. The method of claim 21 wherein the at least one detector includes a plurality of detector channels, wherein each detector channel of the plurality of detector channels is in indirect sensory communication with a different fluid process region of the plurality of fluid process regions.

35. The method of claim 21 wherein each column of the plurality of columns contains stationary phase material of substantially the same composition.

36. A method for correcting retention times in multi-column liquid chromatography, the method comprising the steps of:

providing a plurality of liquid chromatography columns in fluid communication with a common mobile phase source, each column of the plurality of columns containing a stationary phase material and having an associated detection region, wherein the mobile phase source supplies mobile phase to the plurality of columns at a selected mobile phase source output flow rate;

providing, for the detection region associated with each column of the plurality of columns, a detector in sensory communication with the detection region;

supplying a first calibrant to each column of the plurality of columns, wherein the first calibrant contains at least a first component and a second component, with each of the first component and second component having different retention characteristics relative to the stationary phase material;

eluting the at least first component and second component in each column of the plurality of columns according to a first mobile phase source output flow rate and a first mobile phase composition profile;

measuring, for each column of the plurality of columns, a first time for the first component to reach the associated detection region and a second time for the second component to reach the associated detection region;

deriving, for each column of the plurality of columns, at least one correction factor based on at least one of the first time and the second time;

supplying, to each column of the plurality of columns, at least one sample containing a plurality of sample components;

eluting at least two components of the plurality of sample components of the sample in each column of the plurality of columns to obtain raw chromatographic data; and

applying, for each column of the plurality of columns, the at least one correction factor to the raw chromatographic data to yield corrected chromatographic data with corrected retention times.

37. The method of claim 36, further comprising the step of cleaning the plurality of columns between the first elution step and the second elution step.

38. The method of claim 37 wherein the cleaning step includes maintaining a first mobile phase composition profile of at least seventy percent organic solvent.

39. The method of claim 36 wherein each column of the plurality of liquid chromatography columns is microfluidic.

40. The method of claim 39 wherein each column of the plurality of liquid chromatography columns is integrated into a single microfluidic device.

41. The method of claim 36 wherein the stationary phase material includes packed particulate matter.

42. The method of claim 36 wherein the mobile phase includes a first solvent, and the first mobile phase composition profile includes a substantially constant concentration of the first solvent.

43. The method of claim 36 wherein the mobile phase includes a plurality of solvents, and the mobile phase composition profile includes a variation in the weight percent of at least one solvent.

44. The method of claim 43, further comprising the step of mixing the plurality of solvents.

45. The method of claim 36 wherein the mobile phase includes a solute, and the mobile phase composition profile includes a variation in solute concentration.

46. The method of claim 36 wherein the mobile phase source includes at least one pump.

47. The method of claim 36 wherein the mobile phase source includes at least two fluid reservoirs.

48. The method of claim 36 wherein the elution of the at least two components of the plurality of sample components of the sample is performed according to the first mobile phase source output flow rate and the first mobile phase composition profile.

49. The method of claim 36 wherein the step of supplying at least one sample includes supplying a different sample to each column of the plurality of columns.

50. The method of claim 36 wherein the step of supplying at least one sample includes supplying substantially the same sample to at least two columns of the plurality of columns.

51. The method of claim 36 wherein the deriving step utilizes a least square fit method.

52. The method of claim 36 wherein any of the measuring, deriving, and applying steps are automated.

53. A system for correcting retention times in multi-column liquid chromatography, the system comprising:

a plurality of liquid chromatography columns for performing pressure-driven chromatographic separations;

a common mobile phase source in fluid communication with the plurality of columns;

a plurality of detection regions associated with the plurality of separation columns;

at least one detector in sensory communication with the plurality of detection regions;

a data storage device for receiving and storing data obtained from the at least one detector; and

a microprocessor for executing instructions to derive correction factors based on data obtained from the at least one detector, and to apply the correction factors to generate corrected chromatographic data with corrected retention times.

54. The system of claim 53 wherein the data storage device is integrated with the microprocessor.

55. The system of claim 53 wherein each column of the plurality of liquid chromatography columns is microfluidic.

56. The system of claim 53 wherein the plurality of chromatography columns is integrated within a substantially planar microfluidic device.

57. The system of claim 56 wherein the plurality of detection regions comprises a plurality of substantially optically transmissive regions within the microfluidic device.

58. The system of claim 56 wherein the plurality of detection regions is disposed within a multi-channel flow cell.

59. The system of claim 53 wherein the common mobile phase source includes a plurality of pumps.

60. The system of claim 53, further comprising a degasser in fluid communication with the common mobile phase source.

61. The system of claim 59 further comprising a mixer disposed between the plurality of pumps and the plurality of liquid chromatography columns.

62. The system of claim 53 wherein the detector comprises an electromagnetic source and electromagnetic receiver.

63. The system of claim 53 wherein the detector comprises a plurality of fiber optic conduits.